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<p>92-410421/50      A25      DAIL 91.04.04 DAICEL CHEM IND LTD      *JP 04306228-A 91.04.04 91JP-071882 (92.10.29) C08G 65/20 Prepn. of poly(oxy:tetra:methylene:glycol efficiently - by polymerising tetra:hydro:furan in presence of solid catalysts of composite metal oxide and carboxylic acid anhydride, used for e.g. engineering plastic C92-182149</p>	<p>A(2-A6, 2-A7, 5-H5, 10-D3)</p> <p>(ester)amides, surfactant:s, or engineering plastics or for medical uses.</p> <p><b>CATALYSTS</b> The catalysts pref. comprise metal oxides such as Al<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, TiO<sub>2</sub>, ZrO<sub>2</sub>, WO<sub>3</sub> or ZnO<sub>2</sub>. Pref. catalysts include Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>, SiO<sub>2</sub>-TiO<sub>2</sub>, SiO<sub>2</sub>-ZrO<sub>2</sub> and TiO<sub>2</sub>-ZrO<sub>2</sub>. The catalyst is prep'd. as follows; (1) metal conig. -cpds. e.g. metal alkoxides, metal chlorides, metal oxychlorides are added to ammonia to ppte. composite metal oxides, and (2) the pptes. are crushed to particles (200-500 mesh pass) and calcined at 300-600°C.</p>
<p>Prepn. of polyoxytetramethyleneglycol comprises poly- merising tetrahydrofuran in presence of both: (a) solid catalysts composed of composite metal oxides of the formula (1), and (b) carboxylic acid anhydrides.</p> <p style="text-align: center;"><math>M_xO_y</math>      (1)</p> <p>M = metal; and x and y = 1, 2 or 3.</p> <p><b>ADVANTAGES/USES</b> The solid catalyst is easily recovered from the reaction mixt. and reactivated. The polyoxytetramethyl- eneglycol (POTG) is obtd. easily and is used as a raw material for polyurethanes, polyetheresters, polyether-</p>	<p><b>EXAMPLE</b> Silica-alumina solid catalyst (alumina content = 70%) obtd. by calcining at 500°C for 4 hrs. in an air atmos. is packed in a piston-flow type reactor (dia. = 30mm; length = 200mm). 20ml/hr. of THF contg. 3.8 wt. % of acetic anhydride is fed at 40°C and polymsn. is carried out for 132 hrs. continuously to give 404.3g of polyoxytetramethylene- glycol diacetate (Mn = 1,020).</p> <p style="text-align: right;">JO4306228-A+</p>

<p>The catalyst is removed from the reactor and washed with THF. After drying, the catalyst is charged to a tube (dia. = 30mm, length = 400mm) and calcined at 500°C for 7 hrs. under air. THF is polymerised by the same way in presence of the reactivated catalyst to give 406.2g of polyoxytetra- methyleneglycol diacetate (Mn = 1,060). (5ppW156DwgNo0/0).</p>	<p style="text-align: right;">JO4306228-A</p>
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